Teaching NeuroImages: Stroke With Nondecussating Corticospinal Tracts Causing Ipsilateral Weakness

Straight Forward

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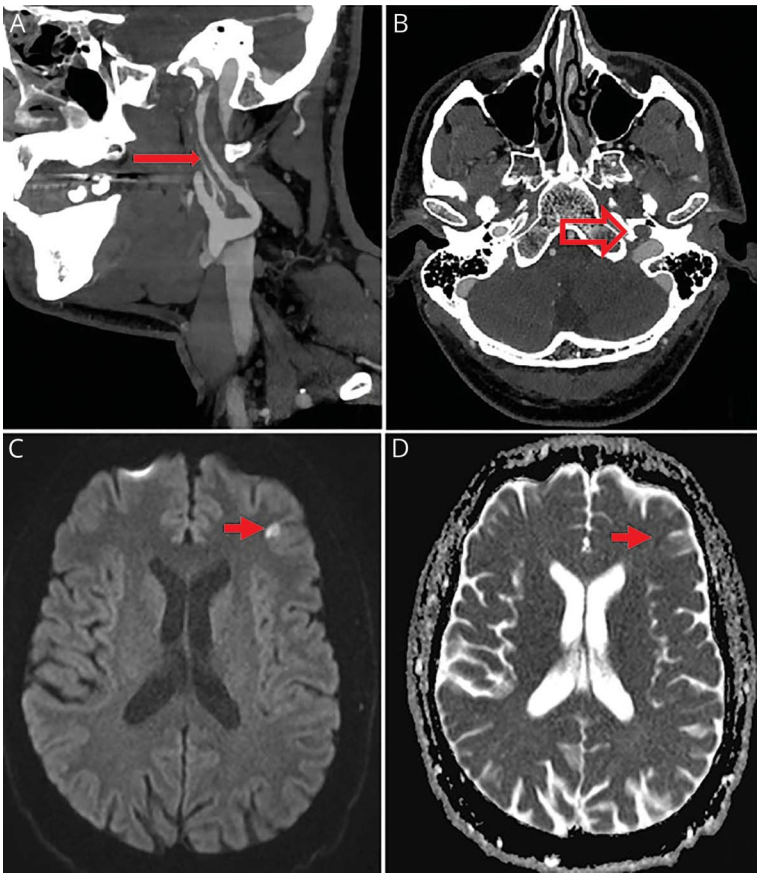
Figure 1 CT Angiogram and Diffusion Weighted MRI



CT angiogram showing left carotid dissection with luminal irregularity and mural thickening of the left carotid from C2 up to the carotid canal on sagittal image (panel A, long solid arrow) and reduced opacification at the carotid canal on axial image (panel B, large hollow arrow). Axial MRI head showing restricted diffusion on B1000 diffusion weighted imaging (panel C, short solid arrow) and apparent diffusion coefficient (panel D, short solid arrow) demonstrating left-sided subacute frontal stroke.

A 43-year-old man presented with left carotid dissection. Examination showed left-sided Horner, left facial weakness, and left pronator drift. MRI brain showed a small left frontal infarct (figure 1), with no other areas of infarction and nondecussating corticospinal tracts on diffusion tensor imaging (figure 2).

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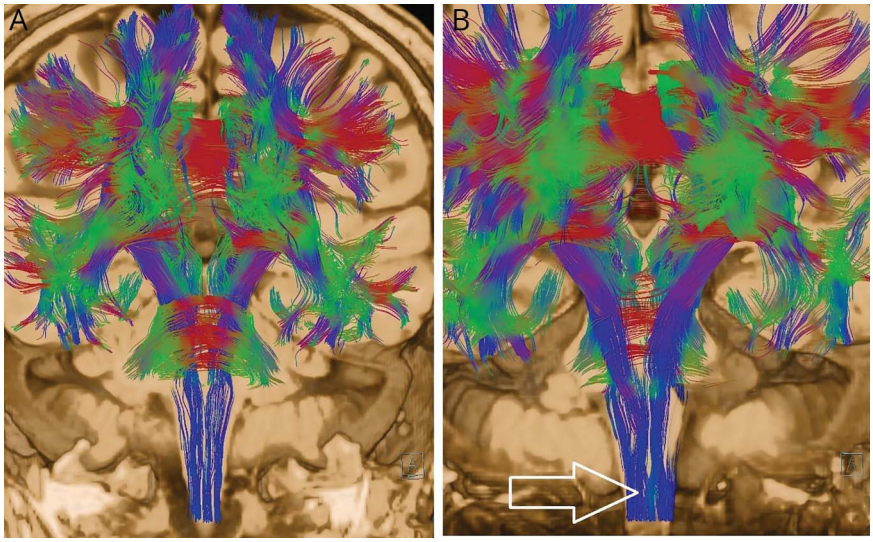
Figure 2 Diffusion Tensor Imaging



Coronal reformatted diffusion tensor imaging showing nondecussation of white matter tracts in the caudal medulla (panel A) compared with normal control (panel B, arrow showing decussation).

Several congenital syndromes are associated with nondecussating tracts and mirror movements.[1] The prevalence of nondecussating corticospinal tracts in the general population is unknown. Ipsilateral hemiparesis is also reported with previous contralateral infarcts possibly from the disruption of compensating normal uncrossed corticospinal fibres.[2] This patient has no baseline impairment and demonstrates nondecussating tracts as an anatomical variant.

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Appendix Authors

Author	Location	Contribution
Lily W. Zhou, MD	University of British Columbia, Vancouver, Canada	Drafted the manuscript for intellectual content and prepared the figures for publications
Jason Chew, MBChB, FRCPC	University of British Columbia, Vancouver, Canada	Revised the manuscript for intellectual content and prepared the figures for publications
Thalia S. Field, MHSc, MD, FRCPC	University of British Columbia, Vancouver, Canada	Drafted the manuscript for intellectual content and communicated with the patient for informed consent

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